Online Student Engagement
as Formative Assessment

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ECTEL 2013 – Paphos, Cyprus

Formative assessment

Formative assessment is an adaptive approach used by teachers during the learning process.

Based on formal and informal assessments, teachers adapt proposed learning activities in order to improve students achievement.

Based qualitative and implicit feedback of the students' performance and engagement, rather than exams' results.

Formative assessment

Definitions to keep in mind…

"all those activities undertaken by teachers, and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (Black and Wiliam 1998).

"the process used by teachers and students to recognize and respond to student learning in order to enhance that learning, during the learning"

(Cowie and Bell 1999).

In our paper…

Experience of a language teacher who has reported to effectively apply formative assessments during an intensive Greek language course using Web 2.0 technologies.

A post-course analysis where we demonstrate that it is possible to infer useful data for formative assessment from simple user data on an online learning environment.

Greek Language Course

The course combines online and face-to-face interactions.

The class met face-to-face every day for five hours for two semesters (total 26 weeks) in the academic year 2009-2010.

The participants of the intensive course were four students (2 female and 2 male) from Kenya, who came to Cyprus, for five years, on full scholarships.

- Ages ranging from 19 to 23 years old.
- Fluent in English
- No knowledge of Greek.
- Basic level of computer skills.

Greek Language Course Wiki

A number of tasks were designed on a wiki during the course

(a) Participants Homepage offered the students the possibility to present themselves in Greek to the potential visitors of the wiki.

(b) Reflective Diary provided the students with an online space for adding their weekly reflections.

(c) Our Glossary hosted various sub-links, one for each of the thematic areas covered in class, where students collaborated to gather the basic words and develop an online database of new vocabulary of each thematic area.

Greek Language Course Wiki

A number of tasks were designed on a wiki during the course

(d) Our Newspaper included various sub-links of the topics a newspaper covers. The students continued to add material in these links until the completion of the foundation course.

e) Instructors' reflections provided the instructor with the opportunity to give her point of view on the course development.

Reflective Diary

Students were supposed to write about what happened and what they learnt over the weeks, on a weekly basis

- No restrictions on which language (English or Greek)
- No evaluation or grading
- A self motivated learning activity

Students had access to each others' pages and to the instructor's reflections in order to enable the social pressure and to increase the students' motivation to contribute.

Reflective Diary

Thanks to the students' reflections, the instructor became aware of the students' difficulties.

Teacher was able to take the necessary actions to smooth their learning and ease the cultural difficulties reported:

"Things got harder and I realized that what I was doing was not enough. The verbs were pilling up... ...Learning a new language is not easy but it also depends on how one takes it"

(S4, Week 6 Reflective Diary)

Reflective Diary

As students started writing their reflections in Greek, the instructor
could informally assess their language progress and take actions to
help them overcome their learning difficulties.

The students' comments on excessive cognitive load over
the course were taken into consideration.

Additionally, erroneous sentences in the students' reflective diaries
were isolated by the instructor and were returned to the students in
class for correction .

Automatic analysis of student engagement

We collected data from the four students' contributions on the *Reflective Diary* during the first 13 weeks of the course.

Table 1. Students' contributions averages.

Student	Revisions	Word Count	Length
S1	0.85	36.31	235.46
S2	1.23	83.54	498.69
S3	3.31	121.54	620.38
S4	4.69	177.92	975.23

Table 2. Students' profile page statistics.

Student	Revisions	Word Count	Length
S1	15	243	1660
S2	12	295	2011
S3	12	295	1991
S4	34	397	2564

We can see a dominance of students S3 and S4, who contributed much more than the other students.

Longer entries and iteratively editing (more revisions).

Automatic analysis of student engagement

Two tables hold a strong correlation (>0.94 Pearson correlation)

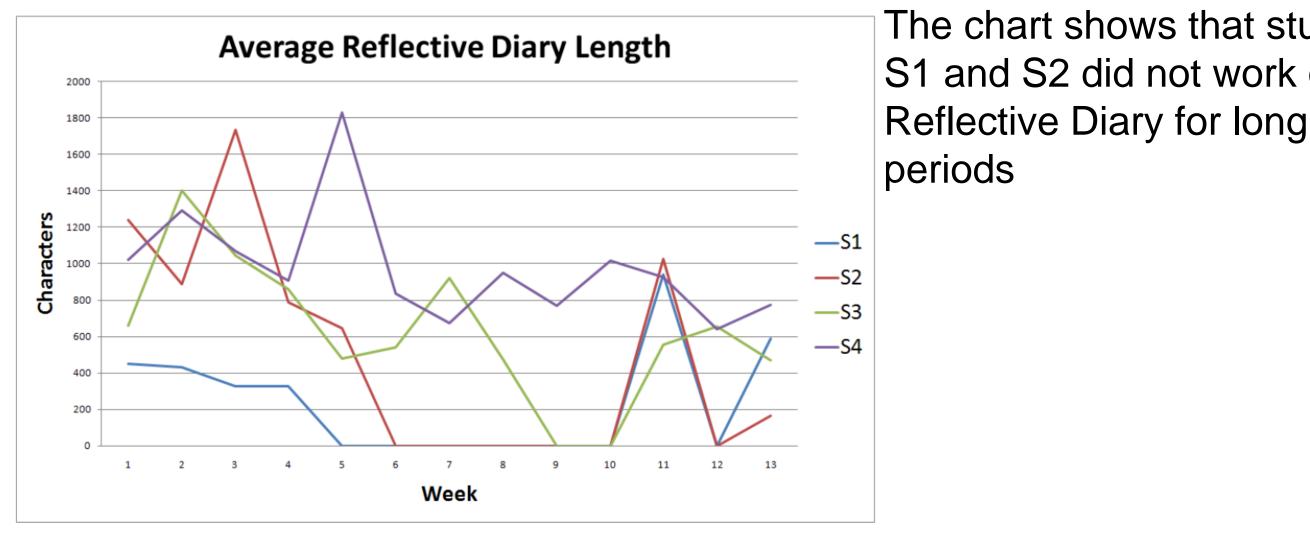we only plotted the length values discriminated by week.

The chart shows that students S1 and S2 did not work on the Reflective Diary for long periods

Fig. 1. Statistics of students Reflective Diary's lenght per week.

Discussion and Conclusions

Without any learning analytics tool, the course instructor was able to identify disengagement.

In fact, according to the teacher, students S3 and S4 had a better overall performance in the course.

Manually identifying disengagement is not scalable.

(group of over 20 students it would become a real burden to instructors).

Straightforward analysis are already able to provide awareness to teachers regarding students disengagement.

Discussion and Conclusions

Existing algorithms can detect variations in user activities.

According to the teacher's report, online students' engagement directly reflected students' learning performance.

Future Work

We would like to implement an alert system that monitors learners activity in a online environment.

Thank you…

Questions?